

REMARKS

As requested by the Examiner, the status of U.S. application serial number 10/016,183 is provided by adding the word "pending" to the Cross-Reference to Related Applications section, the references to Figures 7A – 7C in paragraphs 0056 (page 11) and 0059 (page 12) are clarified, and the grammatical error on page 8 is corrected by deleting the word "of" in paragraph [0042]. Additionally, a new paragraph is added after paragraph [0026] and paragraph [0065] is amended to reflect the addition of FIG. 10. No new matter has been added. Also, the Abstract of the Disclosure is amended to better address the invention that is being claimed. It is believed that the amendments to the specification provide the appropriate corrections as requested by the Examiner. Accordingly, it is respectfully requested that the objections to the specification be withdrawn.

In view of the recent decision rendered in *SuperGuide Corporation v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 884 - 889 (Fed. Cir. 2004), Applicant respectfully submits that the phrase "at least one of ... and" in claims 1 – 6 and 8 – 9 is not necessarily intended to be construed in the conjunctive sense. In claim 1, for example, "a test circuit operable to produce a signal for determining at least one of an operating reference signal and a substrate coupling effect on a plurality of components within an integrated circuit" is intended to include a test circuit operable to produce a signal for determining an operating reference signal within an integrated circuit, a test circuit operable to produce a signal for determining a substrate coupling effect on a plurality of components within an integrated circuit, and a test circuit operable to produce a signal for determining both an operating reference signal and substrate coupling effect on a plurality of components within an integrated circuit.

Claims 2 – 10 stand objected to under 37 C.F.R. 1.75(a) for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. More specifically, the Examiner states:

Claim 2, line 4 cites "a third test circuit operable to produce a third signal" however there was not a second test circuit and a second signal cited before this in the claim. This same type of problem also occurs in claim 3, line 5, claim 4, lines 2 and 5, claim 5, lines, 2 and 5, [and] claim 6, lines 2 and 5. Claim 4, line 3, cites "said plurality of components" which lacks antecedent basis. This same type of problem also occurs in claim 5, line 3, [and] claim 6, line 3. Claim 8, lines 1 – 2, refer to "a second ring oscillator" however there was not a first ring oscillator cited before this second ring oscillator. This same type of problem also occurs in claims 9 and 10. Claim 8, lines 2 – 3, cites "said integrated circuit" which lacks clear antecedent basis in claims 4 and 5. Claims 9 and 10, cite "said integrated circuit" which lacks antecedent basis in claim 6. The examiner asks the applicant to better claim the limitations cited above. While the examiner understands the intentions of the applicant he feels confusion could be drawn from the limitations cited above. Appropriate correction is required.

Claims 1 – 6 and 8 – 10 are amended to remove the terms “first”, “second”, “third”, and “fourth” which were used to distinguish the various circuits and components (e.g., ring oscillators). Claim 7 is canceled. Where appropriate, additional text is provided to distinguish the recited circuits and/or components. Claim 8, for example, is changed from “said second test circuit” to “said test circuit operable to produce a signal for determining at least one of a cross-talk effect on said plurality of components within said integrated circuit and the accuracy of an interconnect capacitance extraction value.” Claims 4, 5, and 6 are amended to recite “a plurality of components within an integrated circuit” to address the antecedent basis issues raised by the examiner with respect to claims 4 – 6 and 8 – 10. It is believed that these amendments adequately address each objection raised by the examiner. Accordingly, it is respectfully requested that the objections pursuant to 37 C.F.R. 1.75(a) be withdrawn.

Claims 1, 2, and 4 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Stinson et al. (U.S. Pat. No.: 6,553,545). Specifically, the Examiner stated:

As per claim 1, Stinson et al. (Abstract, col. 2 lines 40 – 50, 55 – 60, col. 3 lines 15 – 21) disclose a test circuit operable to produce a signal for determining an operating reference signal. Stinson et al. (Abstract, col. 4, lines 8 – 15, col. 8 lines 15 – 17) disclose a test circuit operable to produce a signal for determining a cross-talk effect on a plurality of components.

As per claim 2, Stinson et al. (Abstract, col. 2 lines 40 – 50, 55 – 60, col. 3 lines 15 – 21) disclose a test circuit operable to produce a signal for determining an operating reference signal. Stinson et al. (Abstract, col. 2, lines 24 – 33, col. 3 lines 34 – 36, col. 4 lines 13 – 15) disclose a test circuit operable to produce a signal for determining an effect of system noise on the operational speed of the plurality of components.

As per claim 4, Stinson et al. (Abstract, col. 4 lines 8 – 15, col. 8 lines 15 – 17) disclose a test circuit operable to produce a signal for determining a cross-talk effect on a plurality of components. Stinson et al. (Abstract, col. 2, lines 24 – 33, col. 3 lines 34 – 36, col. 4 lines 13 – 15) disclose a test circuit operable to produce a signal for determining an effect of system noise on the operational speed of the plurality of components.

In addition to the amendments discussed above, claims 1 and 2 are amended to recite “said test circuit having a ring oscillator which mimics a data path within said integrated circuit, wherein said ring oscillator is powered by an external power supply.” Claims 1 and 2 as amended are, in effect, claim 7 rewritten in independent form. The Examiner stated that claim 7 “would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and subject to the appropriate correction of the 37 C.F.R. 1.75(a) objections noted in paragraph 4 above.”

Accordingly, it is believed that claims 1 and 2 are in condition for allowance and it is respectfully requested that the rejection of claims 1 and 2 pursuant to 35 U.S.C. §102(e) be withdrawn.

In addition to the amendments discussed above, claim 4 is amended to recite “said test circuit having a ring oscillator routed within a core logic area of said integrated circuit, wherein said ring oscillator is powered by an external power supply.” Claim 4 as amended is, in effect, claim 8 rewritten in independent form. The Examiner stated that claim 8 “would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and subject to the appropriate correction of the 37 C.F.R. 1.75(a) objections noted in paragraph 4 above.”

Accordingly, it is believed that claim 4 is in condition for allowance and it is respectfully requested that the rejection of claim 4 pursuant to 35 U.S.C. §102(e) be withdrawn.

Claims 3, 5, and 6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Stinson et al. in view of Durham et al. (U.S. Pat. No.: 6,532,574). Specifically, in rejecting each of claims 3, 5, and 6, the Examiner stated:

It appears though that Stinson et al. does not clearly disclose another test circuit operable to produce a signal for determining an effect of power supply noise on a signal propagation delay within a plurality of components. However, Durham et al. (col. 1, lines 25 – 37, col. 8 lines 8 – 23) teach this excepted feature. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply the techniques of Durham et al. to the invention of Stinson et al. as specified above because as taught by Durham et al. (col. 1 lines 26 – 29) some common forms of noise are power supply droop and localized power variations, signal line coupling, and Miller effect capacities across circuit inputs/outputs.

It is respectfully submitted that the Examiner has misconstrued the teachings of Durham. More specifically, it is believed that Durham fails to disclose or teach a test circuit which produces a signal related to the effect of power supply noise on a signal propagation delay within a plurality of components.

In contrast, Durham is directed to adjusting a plurality of delay control circuits within clock buffering stages to provide post-manufacture signal delay adjustment (col. 7, lines 23 – 26). Durham teaches that the timing for a particular integrated circuit design is tested by loading “a dedicated scan chain ... with a default value” into the integrated circuit (col. 7, lines 31 – 32). The actual signals found on the integrated circuit’s critical paths, not a signal or signals produced by a separate circuit, are then observed to determine the timing delay caused by capacitive effect (e.g., see Signal 1 – Signal 3 in FIGS. 2A – 2B).

If the timing of a critical path within the integrated circuit is impacted by adjacent signal line capacitance variations, the timing may be adjusted using the delay control circuits (e.g., see Signal 1 – Signal 3 in FIGS. 2A – 2B; col. 7, lines 32 – 38). Accordingly, it is respectfully submitted that Durham

fails to teach or suggest the use of a separate circuit for producing a signal related to the effect of power supply noise on a signal propagation delay.

Because Stinson et al. does not disclose "a test circuit operable to produce a signal for determining an effect of power supply noise on a signal propagation delay within a plurality of components" and because Durham fails to provide the missing teaching, it is believed that claims 3, 5, and 6 are in condition for allowance. Thus, it is respectfully requested that the rejection of claims 3, 5, and 6 pursuant to 35 U.S.C. §103(a) be withdrawn.

Claims 7 – 10 stand objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and subject to the appropriate correction of the 37 C.F.R. 1.75(a) objections noted in paragraph 4 above. Claim 7 is canceled. Claim 8 depends from allowable base claims 1 or 5, claim 9 depends from allowable base claims 2 or 6, and claim 10 depends from allowable base claims 3 or 6. Thus for the reasons discussed above in conjunction with claims 1 – 3 and 5 – 6, it is believed that claims 8 – 10 are in condition for allowance. Accordingly, it is respectfully requested that the objections to claims 8 – 10 be withdrawn.

Applicants have made a diligent effort to place the application in condition for allowance. Accordingly, a Notice of Allowance for claims 1 – 6, and 8 – 10 is respectfully requested. If the Examiner is of the opinion that the instant application is in condition for disposition other than through allowance, the Examiner is respectfully requested to contact applicants' attorney at the telephone number listed below so that additional changes may be discussed.

Respectfully submitted,



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